AUDIOVOX®
ELECTRONICS CORP.

# SATELLITE DIGITAL AUDIO CONTROL AND RECEIVER SYSTEM

SIRIUS® Satellite Radio

## SATELLITE RECEIVER SYSTEM

## MODELS SRSIR-001, SRSIR-001FM and SRSIR-001FMR

# OWNER'S MANUAL

Released: 06-18-02.
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## ABOUT SIRIUS®

Congratulations. You are one step closer to experiencing Sirius Satellite Radio. Sirius will revolutionize you're in-vehicle entertainment with:

- 100 channels of original programming, including –
  - 60 channels of completely commercial-free music – guaranteed.
  - 40 channels of news, sports and entertainment
- Coast-to-Coast reception
- Digital-quality sound

All music content is selected and developed in-house by Sirius' team of Master Music Programmers – talented and seasoned professionals who love the music as much as the listeners. World-class partners such as ESPN, ABC, CNBC, Bloomberg, Discovery and Radio Disney are developing news, sports and entertainment programming.

## WHAT TO DO TO GET SIRIUS®

It's easy. You have one of two choices to activate your service:

(1) Visit the website at siriusradio.com
Click on the "JOIN" section. You will then need to follow some simple directions and provide us with some critical information in order to activate your service.

(2) Call us at 1-877-539-SIRIUS (7474)
One of our friendly Customer Care representatives will take the necessary information and walk you through the activation process.

## WHAT DO YOU NEED

There are a couple of pieces of information that you will need when you are ready to activate the service. Please have the following ready:

- Sirius ID number / ESN – from the tuner module
- Vehicle Identification Number

Valid Credit Card information

## HOW THE SYSTEM OPERATES

Control of system functions is achieved by the wired SCU, which can be conveniently mounted to the dashboard in a number of configurations. In addition, an optional wireless remote (Audiovox P/N SAT-RC) to control SCU functions is also available. The SIRIUS® Satellite Radio signals are received by the antenna and are routed to the RRU, whose RF output is supplied to the FM Switching Box.

The FM Switching Box, in turn, is capable of transmitting on 7 FM frequencies; namely, 88.1MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz, 89.1MHz and 89.3MHz.
The frequency is selected using the FM band of the existing vehicle radio. (The default FM frequency is 88.5MHz.) Select the FM frequency with the least noise or static, and then use the SCU to choose the SIRIUS® channel for your listening pleasure.
**NOTE:** When a FM frequency is not desired entering the following code can be use to mute it: ***(SFT) + 0928 + (SFT)***

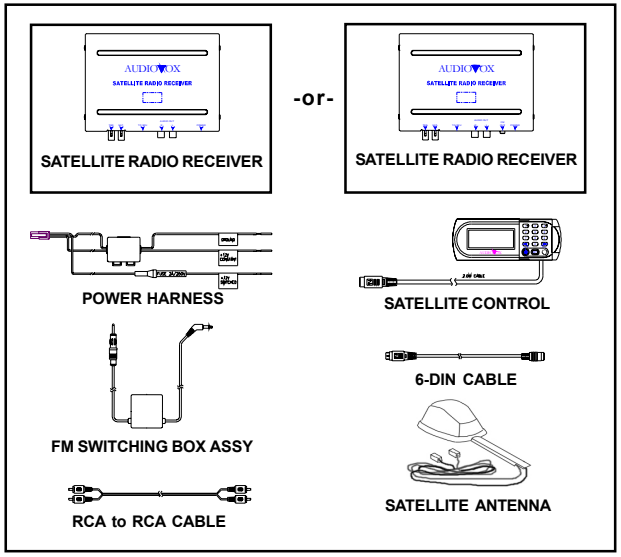


**Figure 1. SIRIUS® Satellite Receiver System**

## *SATELLITE SYSTEM CONTROL UNIT (SCU)*

The SCU provides for complete control of the system by means of its Liquid Crystal Display (LCD) and associated function buttons.

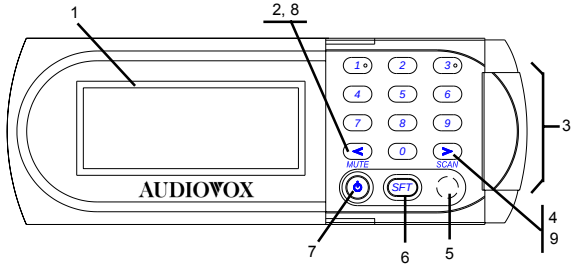


**Figure 2. Satellite System Control Unit (SCU)**

1. **Liquid Crystal Display (LCD):** Presents a display of various broadcast, song title, performer(s), advisory/error messages, etc.
2. **Down Directional (◀) Button:** When momentarily pressed and released, the channel number will decrease with each press; when pressed and held, the channel number will decrease continuously. Release the button when the desired channel number is displayed. When used in conjunction with the Shift ***(SFT)*** button, the *MUTE* function is enabled. (See Mute Function Button section below)
3. **Keypad Buttons 0-9:** These buttons are used to directly enter a desired channel number. Momentarily press the Shift ***(SFT)*** button followed by the desired channel number then the Shift ***(SFT)*** Button. They are also used when entering and recalling preset channel numbers into memory.
4. **Up Directional (▶) Button:** When momentarily pressed and released, the channel number will increase with each press; when pressed and held, the channel number will increase continuously. Release the button when the desired channel number is displayed. When used in conjunction with the Shift ***(SFT)*** button, the *SCAN* function is enabled. (Refer to the Scan Function Button section)
5. **Infrared Detector:** Provides detection of the infrared control signal transmitted by an optional wireless remote control unit (P/N SAT-RC) for remote operation. Make sure no obstructions are blocking the signal path.
6. **Shift *(SFT)* Button:** When momentarily pressed, this button provides access to additional functions, such as audio MUTE, Channel SCAN, Direct Channel Access, Category Select, Parental Lock-Out etc.

When pressed and held, this button allows you to switch between pre-set channel groups 1 and 2. This button is also used to invoke the Category Mode, which can also be achieved by Momentarily Pressing and Releasing ***the (SFT) button*** then Pressing and Holding the ***(SFT)*** button again for 2 seconds, "ENTER CATEGORY TUNE" or "ENTER CHANNEL TUNE" will be displayed .

7. **Power On/Off ( ⏻ ) Button:** Press this button to apply power to the Satellite Radio Receiver system. The associated radio must be turned on and off separately using its power switch.
   This button is also used to back light the number keys when the system is on. To do so, momentarily pressed and release the Power On/Off Button. The back lighting will last for 10 seconds.
8. **Mute Function Button:** Momentarily press the shift ***(SFT)*** button; then press and hold the Down directional (◀) button to enable the audio mute function. When enabled, the audio program is muted and the Mute icon ( 🔇 ) appears in the lower right corner of the SCU display. Press any button to exit the mute function.
9. **Scan Functions:**
   **Scanning All Channels –** [enter code ***(SFT)+0960+(SFT)***] Momentarily press the Shift ***(SFT)*** button; then press and hold the Up directional button (▶) for 2 seconds to enable the Channel Scan function. When enabled, each channel is scanned in the either direction for 10 seconds before moving on to the next active channel. This permits channel preview or introductory sampling of channel programming. The channel (CH) icon on the SCU screen will appear in reverse image (white-on-black) format. Press any button to exit the Scan function.
   **Scanning Preset Channels -** [enter code ***(SFT)+0961+(SFT)***] This function works in the same way as the ***Scanning All Channels*** mode, except this mode will only scan the preset channels. You can configure a total of 40 preset channels, 20 in Channel Mode (two groups of 10 channels, upper and lower) and 20 in Category Mode (two groups of 10 channels, upper and lower). Preset channel being previewed are displayed in the lower right corner. A black number on white background indicates that it is part of the upper group of channels and a White number on a Black background indicates that it is part of the lower group. When scanning these channels an indicator will appear in the right corner of the screen.
   - **(SR1)** = Lower Preset Channel Group (first 10 channels)
   - **(SR2)** = Upper Preset Channel Group (next 10 channels)

   To switch between the two groups of preset channels press and hold the Shift *(SFT)* button for 2 seconds until a tone is heard indicating the switch was made.

## *SATELLITE RADIO RECEIVER UNIT (RRU)*

The RRU is a central data-receiving unit, which is required to process the satellite signals received by the externally mounted antenna (purchased separately). The RRU contains the processing logic needed to recognize, decode the incoming SIRIUS® program information and then distribute a recognizable RF signal to the FM Switching Box .

**NOTE:** The SIRIUS® signal can be received and processed virtually anywhere as long as there are no obvious Satellite Signal Obstructions such as parking garages, tunnels.

The RRU is typically installed under the seat or in the trunk/rear of the vehicle.

# Functional Operation

Functional operation of the system is controlled by the buttons on the SCU; i.e., the sequence in which they are pressed and the length of time button activation occurs.

## *POWERING UP THE SYSTEM*

After the system has been properly installed it can be powered on in the following manner:

1. Apply power to the vehicle's radio.
2. Apply power to the Satellite System Control Unit SCU by momentarily pressing (1 second) the Power On/Off button ( ⏻ ).
3. Tune the vehicle's radio to a selected FM frequency between 88.1MHz and 89.3MHz. If you are not sure which frequency to select, use the radio's SEEK, SCAN or TUNE function to scroll through the frequencies until the satellite signal is played through the speakers.
   **NOTE:** *The default FM frequency is 88.5MHz.*
4. Enter this frequency into memory using one of the preset buttons on the vehicle's radio; make note of the FM band and preset number.

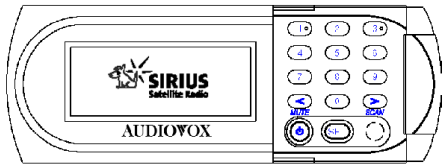


**Figure 3. The SIRIUS® Logo Appears-and-Satellite Program is Loaded**

5. After the correct frequency is identified and entered into the radio's memory, the SCU will display the preview channel *(CH184)* if the *SIRIUS*® service is being activated for the first time (*see DISPLAYING THE IDENTIFICATION (ID) CODE*). If the *SIRIUS*® service was previously activated, the SCU will return to the SIRIUS® channel used when the system was last turned off.

## *DISPLAYING THE IDENTIFICATION (ID) CODE*

Once the system is installed you must first subscribe to the SIRIUS® Radio service to activate the system. The SIRIUS® Radio service uses an ID code to identify your radio. This code is needed to subscribe to SIRIUS® Radio, and if needed, is also used to report any problems should there be any in the future.

To display the radio ID code, proceed as follows:

1. To display the ID Code enter ***(SFT)+0+(SFT)***
2. Make a note of your radio ID Number
3. Contact SIRIUS® Radio on the web, or by phone, to subscribe to the service.

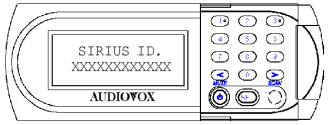


**Figure 4. SIRIUS® ID Code**

## *SELECTING A SATELLITE CHANNEL*

Selecting a satellite channels can be accomplished in four ways;

1. Scrolling Channel-by-Channel
2. Selecting a Group or Category of Channels
3. Scrolling and Selecting a Preset Channel
4. Direct Channel access.

The following subsections describe the procedure for each of the options.

**NOTE:** *If the SIRIUS® signal reception appears to be noisy or contains audible background static, try switching to another FM frequency. Refer to* ***Direct FM Frequency Selection*** *for details on how to select another FM frequency.*

A typical channel display will appear as shown below.

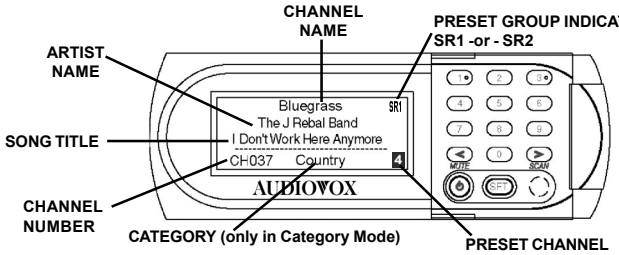


**Figure 5. Sample SIRIUS® Display**

### *USING THE UP/DOWN BUTTONS*

This section describes two ways the Down (◀) and Up (▶) directional buttons are used to select an SIRIUS® channel. Proceed as follows:

1. To advance one channel at a time in the chosen direction (Up or Down), momentarily press and release either directional button (◀▶) until a desired channel is reached.
2. To advance rapidly in the chosen direction *(Up or Down)*, press and hold either directional button (◀▶). Release the directional button when a desired channel is reached.

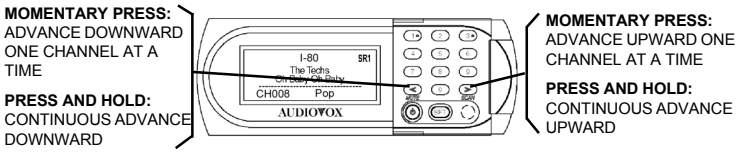


**Figure 6. Using the UP / Down Buttons**

**NOTE:** *When an invalid (no broadcast) channel is encountered, the channel is automatically skipped.*

## *Confirmation Tone(s) Function*

There are two basic functions of this feature; the Command Confirmation Tone, the Station Pre-Set Program Confirmation Tones. The following is a description of each of these functions:

1. **Command Confirmation Tone** - This function utilizes a single High Tone signal that is heard each time a button is pressed to confirm that the command was executed. This tone is implemented each time the user presses the Power, Mute, Scan, Shift or Directional (◀▶) button(s) as well as for each of the numbered buttons.
2. **Station Pre-Set Program Confirmation Tones** - This function utilizes two High Tone signals that are heard each time the user programs a Pre-Set channel. When the user enters a channel into memory (*Refer to Presetting A Desired Channel below*) a High Tone will be heard as the selected number button is pressed and held. A second High Tone Signal is heard confirming that the Pre-Set command was executed. It is only after the second tone that the user can release the button (approximately two seconds).

## *DIRECTLY ACCESSING A CHANNEL*

This section describes the procedure used to directly access a specific channel, this is different then making direct access in Category mode (see *SELECTING CHANNEL CATEGORIES)*

1. With the system powered up, momentarily press the Shift ***(SFT)*** button causing the first channel number in the current category to flash for 5 seconds. The flashing number indicates the Channel number in Channel mode.
2. While the number is flashing, use the number buttons on the keypad to enter the channel desired. The selected channel number will flash for 5 seconds and then remain steady. The flashing number indicates the value of the Category in Category mode.

**NOTE:** *If the selected channel is not available within the band, a "Invalid Channel" message will appear on the display and the system will remain tuned to the previous channel.*

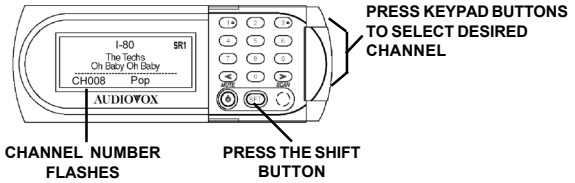


**Figure 7. Accessing Channels**

### *SELECTING CHANNEL CATEGORIES (only in Category Mode)*

This section describes the procedure used to select a specific group or category of entertainment. Entering into category mode can be accomplished either by Pressing ***(SFT)+0981+(SFT)*** or to quickly shift between Category mode and Channel mode, momentarily Press and release ***(SFT)*** then Press and Hold ***(SFT)*** for 2 seconds, "ENTER CATEGORY TUNE" or "ENTER CHANNEL TUNE" will be displayed .

1. With the system powered up, momentarily press the Shift ***(SFT)*** button causing the first channel number in the current category to flash for 5 seconds.
2. While the number is flashing, momentarily press and release either directional button (◀▶) a desired category is reached. The category will advance one at a time and will also flash for 5 seconds. If no further advance is made, the flashing will stop and the category will then remain steady.
3. To advance rapidly in the chosen direction (Up or Down) and while the channel number is flashing, momentarily press and release either directional button (◀▶) in a rapid manner. Release the directional button when a desired channel is reached.

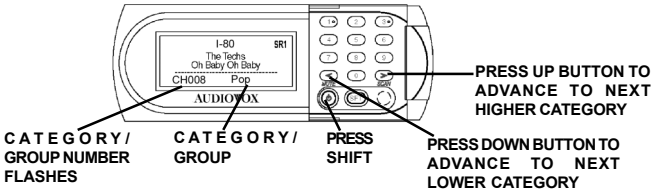


**Figure 8. Selecting Channel Categories**

The channel tuning will automatically wrap around from the last to the first channel in that category or vice-versa. When a new category is chosen, the radio will automatically select the first channel in that category.

**NOTE:** If a directional button is Pressed and Held channels will begin to scroll in numerical sequence through all categories until the button is released. This navigation mode will continue to function in the same manner in the new category. The user must exit this mode before attempting to perform any other function. To exit this mode, enter ***Shift (SFT) 0980 Shift (SFT)***.

## *PRESETTING DESIRED CHANNELS*

This section describes how to preset up to 20 channels on your SCU (two groups of 10 channels, upper and lower) for rapid and easy access. Proceed as follows:

1. Select the desired channel you wish to save in memory by using the directional buttons (◀▶), direct access method, or category select tuning method.
2. With the desired channel displayed, press and hold any one of the numbered keypad buttons until the confirmation tone (or second tone) is heard (Refer to *Confirmation Tone(s) Function).* Continue with this process until the first group of 10 preset channels is loaded (lower group).

**NOTE:** There is a preset channel group indicator icon located in the top right corner of the SCU display. This is used to determine which group you are in.

- **(SR1)** = Lower Preset Channel Group (first 10 channels)
- **(SR2)** = Upper Preset Channel Group (next 10 channels)

3. Repeat the procedure in steps 1 and 2 to save nine other desirable channels for quick access.

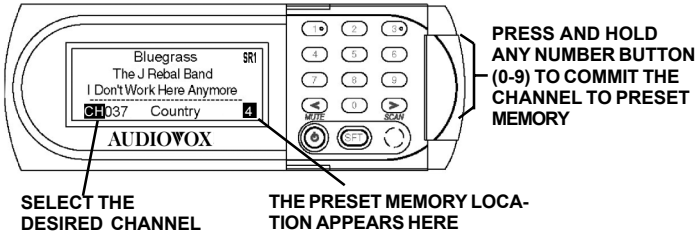


**Figure 9. Setting Preset Channels**

Each category or group is assigned a sequential block of channels. To navigate within a category, enter ***Shift (SFT) 0981 Shift (SFT)***. This mode will allow the user to switch between channels within a chosen category.C

4. To program the second group of 10 preset channels (upper group) press and Hold the Shift (SFT) button for 2 seconds until a tone is heard. By doing this you have entered the second bank (upper group) and the SCU is ready to accept an additional group of 10 channels into memory.
5. Select the desired channel you wish to save in memory by using the directional buttons (◀▶), direct access method, or category select tuning method.
6. With the desired channel displayed, press and hold any one of the numbered keypad buttons for until the confirmation tone (or second tone) is heard. Continue with this process until the second group of 10 preset channels is loaded (upper group).

Preset channels being previewed are displayed in the lower right corner. A black number on white background indicates that it is part of the upper group of channels and a White number on a Black background indicates that it is part of the lower group.

## *SPECIAL FUNCTIONS USING THE SHIFT BUTTON*

There are a number of user preference functions that can be adjusted simply by using the Shift (SFT) button with a specific number code. These functions are explained in the following paragraphs.
In general, a shift/code is entered in the following manner:

SFT 0 9 X X SFT, where:
**(SFT)** represents Shift button activation and **XX** represents the specific function code. (The 4-digit code always starts with **09**.)

### *DIRECT FM FREQUENCY SELECTION*

The selection of a specific FM frequency can be directly accessed using the appropriate code; these codes are presented as follows:

| CODE | SELECTION |
|---|---|
| 21 | 88.1MHz |
| 22 | 88.3MHz |
| 23 | 88.5MHz |
| 24 | 88.7MHz |

| CODE | SELECTION |
|---|---|
| 25 | 88.9MHz |
| 26 | 89.1MHz |
| 27 | 89.3MHz |
| 28 | FM MUTE |

**Figure 10. Modulator Frequency Codes**

**NOTE:** *The default frequency is 88.5MHz*

### SYSTEM DEFAULT SHIFT CODE

Defaults refer to the settings that are entered at the factory. When code **31** is entered, the system is reset to the following defaults:

1. All channel presets cancel and revert to channel 184.
2. The LCD backlighting reverts to Green
3. Button confirmation tone is turned on.
4. All channels that were previously Skipped are reinstated.
5. Previously Locked Out Channels are released by entering (SFT)+0994+(SFT).

### LCD CONTRAST SHIFT CODE

To change the LCD contrast:

1. Enter code 35.
2. Use the Up and Down directional buttons to increase or decrease display contrast, respectively.
3. Press the SFT button to exit LCD contrast mode.

## LCD BACKLIGHT DIMMING SHIFT CODE

To enable the LCD backlight dimming feature:

1. Enter shift code 36, "DIMMING ADJUST" will be displayed.
2. Use the Up and Down directional buttons to increase or decrease display dimming, respectively.
3. Press the (SFT) button to exit LCD backlight dimming mode.

## BUTTON CONFIRMATION TONE SHIFT CODE

Normally, a beep confirmation tone is heard each time a button is pressed on the SCU. To silence this confirmation tone:

1. Enter code 40.
2. To turn the beep tone on again, enter code 41.

## LCD BACKLIGHT COLOR SHIFT CODES

The backlight color for the LCD display can be either Green or Amber; to select the desired color, enter one of the following codes:

1. Green-51
2. Amber-52

## SCAN SET SHIFT CODES

To invoke the Scanning mode of Normal Preset or Normal Non-Preset channels:

1. Normal Channel Scan-60 "ENTER CHANNEL TUNE" will be displayed: Operation in normal mode, whereby channels can be scanned in sequential order, up or down.
2. Preset Channel Scan-61 "ENTER PRESET CHANNEL TUNE" will be displayed: Operation in this mode makes channel scanning possible only within the same category or group.

## CHANNEL/CATEGORY SELECTION SHIFT CODES

To invoke the Channel(Normal)/Category selection mode:

1. Normal (Default Mode)-80: Operation in normal mode, whereby channels can be selected in sequential order, up or down. "SIRIUS" Will be displayed in the lower portion of the LCD Screen.
2. Category-81: Operation in this mode makes channel changing possible only within the same category or group.

## CHANNEL SKIP SHIFT CODE

If you wish to prevent acquisition of a particular channel during the channel selection process:

1. Recover Skipped Channels-90: Regain access to the channel by using the direct selection method to select the skipped channel; then enter code 90. (SFT+0990+SFT) NOTE: This function can only be selected when directly accessing the channel(s) to be skipped.
2. Skip Channel-91: The channel will be skipped over during channel selection. (SFT+0991+SFT)

## PARENTAL CONTROL CODES

1. Current Channel Parental Lock Out----92: Lock Out the current channel so that it may only be accessed with a chosen password. (SFT+0992+SFT) NOTE: This function can only be selected when directly accessing the channel(s) to be locked out.
2. Parental Lock Out Security Code Change----93: This code allows the user to change the Lock Out Security Code . (SFT+0993+SFT)
3. Release Parental Lock Out----94: This code is used to Release the current Locked channel. (SFT+0994+SFT)
4. Initialize Security Code ----98: This code is used to set and use a security code (password) into memory. (SFT+0998+SFT) When this codeis entered, "ENTER MASTER CODE" will be displayed.

**NOTE:** DEFAULT SECURITY CODE = **0000**
SYSTEM MASTER CODE **= 5246**

### *DISPLAY MESSAGES*

When problems are encountered during SIRIUS® system operation, a message may appear on the display. The following table outlines the most common problems and provides a probable cause(s) for each and a suggested corrective action(s) to restore normal operation.

| MESSAGE | DEFINITION | ACTION NEEDED |
|---|---|---|
| ACQUIRING INFO | This message appears (flashing slowly) to indicate the signals status when the RRU is receiving an Audio signal. "SIRIUS" logo is also shown at the bottom of LCD in direct tuning mode. | Wait for the system to receive all of the program information needed. |
| ACQUIRING SIGNAL | This message appears (flashing slowly) to indicate the signals status when the RRU starts tuning mode.<br>This message is also used to indicate the loss of or weak signal. | 1. Check the Antenna connections<br>2. Change the location of the vehicle. |
| CHECK ANTENNA | This message appears to indicate that the Antenna is disconnected. | Check the Antenna connections. Reconnect any disconnected cables. |
| NO INFORMATION | This message appears to indicate that the current channel doesn't have data to display (song title, artist name) | No Action. |
| SCANNING | This message appears (flashing) to indicate that the unit is scanning for the next channel. | Wait for the system to receive the next Channel information. |
| CALL 888-539-SIRIUS | This message appears to indicate that the system is not actively subscribed to SIRIUS Radio Service. | Call 1-888-539-SIRIUS (7474) to activate your system. |
| INVALID CHANNEL | This message appears to indicate that the channel entered is an invalid channel. | Select another channel within the SIRIUS band. |

## *Troubleshooting Considerations*

The following table presents a few possible causes of system operating faults, their probable causes and the remedial action suggested to restore the system to normal operating conditions.

**Troubleshooting Considerations**

| FAULT | PROBABLE CAUSE | CORRECTIVE ACTION |
|---|---|---|
| SCU Does not Turn On | Blown fuse, power cable not connected correctly, and/or SCU not connected to RRU. | 1. Check fuses.<br>2. Check power cable.<br>3. Check DIN cable connection between SCU and RRU. |
| Check Antenna Display Message | The Satellite Antenna is not connected. | Check satellite antenna connections to the RRU. |
| | The antenna itself or the antenna cable is faulty. | Contact system installer or vendor. |
| Audio Static or Loss of Clarity | Vehicle antenna cable not connected to Switch Box or vehicle radio. | Check antenna cable. |
| No Received Signal on SCU Display | Check for obstacles over or around antenna. | Change your location to eliminate nearby obstacles (bridges, tunnels, etc.). |
| No Sound | 1. Audio cables not connected.<br>2. Switch Box antenna connection.<br>3. Radio not tuned to proper FM Modulator frequency.<br>4. Mute mode selected on SCU. | 1. Check audio cables at RRU and in dash radio.<br>2. Check RF antenna cable connections between Switch Box and vehicle/radio antenna.<br>3. Tune radio to proper frequency.<br>4. Deactivate Mute mode at SCU. |

## *Specifications*

**GENERAL**

| | |
|---|---|
| Power Source | 12 Vdc, Negative Ground |
| Max. Current Consumption | 1.2 A |
| Dimensions: | |
| Satellite System Control Unit (SCU) | 133mmL x 21.0mmW x 47.5mmH (5.24") x (0.83") x (1.87") |
| Satellite Radio Receiver Unit (RRU) | 170mmL x 114.9mmW x 30.5mmH (6.7") x (4.5") x (1.03") |

**Weight:**

| | |
|---|---|
| Satellite System Control Unit (SCU) | 9.5 oz (0.269Kg) |
| Satellite Radio Receiver Unit (RRU) | 23.0 oz (0.652Kg) |

**FM Switching Box (For SRSIR-001FM)**

| | |
|---|---|
| Usable Frequencies | 88.1MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz, 89.1MHz, 89.3MHz |

If you need help, just call Audiovox's toll-free telephone assistance line at **1-800-645-4994**

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